

REMARKS

Claims 15-27 and 29-34 are currently pending of which claims 15 and 29 are independent. The final office action indicates that claims 16 and 18-20 contain allowable subject matter. However, claims 15, 17, 21-26, 29-31, and 34 stand rejected as being unpatentable over Rampone (U.S. Pat. No. 6,020,751) in view of Onitsuka (U.S. Pat. No. 6,618,937). However, neither reference, alone or in combination, teaches or suggests every limitation of the independent claims.

Beginning with claim 15, it is directed to a method of manufacturing a high-frequency assembly that includes a plurality of components. At least one of the components is frequency specific. A placing apparatus of an automatic assembly apparatus places a plurality of components (e.g., electronic components) onto a high-frequency assembly. Prior to the placing apparatus gripping a frequency-specific component for placement on the assembly, however, the component is identified using a frequency-encoding feature on the component. If the identification indicates that the high-frequency component is the correct component for the assembly, the component is accepted for placement on the assembly. Otherwise, the component is rejected. *E.g., Spec.*, p. 6, ll. 7-23; p. 8, ll. 17-21.

The cited references do not render claim 15 obvious for several reasons. The preamble of claim 15 makes clear that the method is directed to manufacturing high-frequency assemblies. Each limitation thereafter contains language reciting how the claimed manufacturing process occurs – i.e., by identifying frequency-specific components to be placed onto an assembly before placement, and conditionally placing those identified components onto the assembly based on a frequency-encoded feature on the component. However, the primary reference Rampone is entirely unrelated to a method of manufacturing high-frequency assemblies by placing identified, frequency-specific components on an assembly. Indeed,

Rampone neither teaches nor suggests anything about a manufacturing process because it is fundamentally directed to a process that occurs after manufacturing is complete.

More specifically, Rampone is directed to a method of stress testing a completed circuit board assembly to ensure proper operation. *E.g., Rampone*, col. 1, ll. 7-9; col. 2, ll. 19-39. In Rampone, a processor performs at least one parametric test designed to determine whether a given circuit board assembly has an adequate design margin to ensure proper performance. According to Rampone, the parametric testing is specifically directed towards testing the integrity and interaction of all of the components and agents. *E.g., Rampone*, col. 4, ln. 60 – col. 5, ln. 6.

Undeniably, the stress testing method disclosed by Rampone can only occur after the manufacturing process for the circuit board assembly is complete. All electronic components must already be mounted to the circuit board being tested. Otherwise, the method of Rampone makes no sense (i.e., it makes no sense to stress test an incomplete assembly). A reference that discloses a post-manufacturing method of stress testing a completed circuit board does not teach or suggest anything about how the components on the circuit board are selected and mounted to the circuit board as part of its manufacturing process.

Additionally, however, the cited references fail to teach or suggest other limitations recited in claim 15. Particularly, claim 15 recites, “identifying a frequency-encoding feature on a frequency-specific component prior to gripping the frequency-specific component with the placing apparatus.” Neither reference teaches or suggests this limitation.

To stress test the circuit board assembly, Rampone reads a standard operating frequency for the circuit board from read-only memory (ROM), or determines a clock speed for the circuit board by determining the setting of one or more jumpers settings on the circuit board. However, whatever Rampone reads is for the completed circuit board only and not for a particular component. Further, Rampone reads for stress testing purposes only, and not to

determine whether a given component should be mounted on the circuit board assembly. Additionally, because whatever Rampone teaches occurs after the manufacturing process is complete, Rampone cannot teach or suggest any procedure that occurs “prior to gripping the frequency-specific component with the placing apparatus,” as claimed in claim 15.

The secondary reference, Onitsuka, does not remedy Rampone. Onitsuka discloses a method of manufacturing a circuit board, but does not teach or suggest, “identifying a frequency-encoding feature on a frequency-specific component prior to gripping the frequency-specific component with the placing apparatus.” In fact, Onituka is completely silent on the frequency-specific characteristics of the components. The Office Action asserts that in column 7, lines 25-43, Onitsuka uses a camera to image a particular component and determine its frequency-specific characteristics. However, this is not what the cited passage discloses. The cited passage discloses only that a camera images the component to determine its position for placement on the circuit board. It says nothing about imaging a given component to determine the frequency characteristics of the component. Further, according to Onitsuka, the camera images only a bottom surface of the component, or an edge of the circuit board, after being gripped for placement on the circuit board, not “prior to gripping the frequency-specific component with the placing apparatus,” as claimed.

Therefore, Onitsuka does not remedy Rampone, and both references fail to teach or suggest, “identifying a frequency-encoding feature on a frequency-specific component prior to gripping the frequency-specific component with the placing apparatus.” As such, the references cannot render claim 15 obvious for at least this reason.

Another reason that the cited references do not render claim 15 obvious, however, is that neither reference teaches or suggests conditionally accepting or rejecting a frequency-specific component for placement on the assembly based on the indications of a frequency-encoding feature associated with the component. Particularly, claim 15 recites, “accepting the

frequency-specific component for connection to the high-frequency assembly if the frequency-encoding feature indicates that the frequency-specific component is a correct component for the assembly...and...rejecting the frequency-specific component for connection to the high-frequency assembly if the frequency-encoding feature indicates that the frequency-specific component is not the correct component for the assembly.” There are at least two reasons for this.

First, neither reference can teach or suggest accepting or rejecting a frequency-specific component based on a frequency-encoding feature that neither reference identifies. Second, however, because Rampone is stress testing the integrity and interaction of the completed components, the circuit board assembly in Rampone already has all of its requisite components mounted to the circuit board under test. As such, Rampone cannot not teach or suggest accepting and rejecting frequency-specific components for placement on a circuit board assembly. Onitsuka also fails to teach or suggest the claimed conditional acceptance or rejection of the component, and the Office Action does not assert that it does. Therefore, Onitsuka also fails to teach or suggest this limitation.

Therefore, for at least the foregoing reasons, neither Rampone nor Onitsuka alone teaches or suggests every limitation of claim 15. Because both references fails to teach or suggest the same limitations, any combination of the references fails to teach or suggest those limitations. Accordingly, neither Rampone nor Onitsuka renders claim 15 or its dependent claims obvious.

Claim 29 is directed to a manufacturing apparatus for the automatic manufacture of a high-frequency assembly, and stands rejected as being obvious over Rampone in view of Onitsuka for the same reasons as those stated for claim 15. However, claim 29 is the corresponding apparatus claim and as such, recites language similar to that of claim 15.

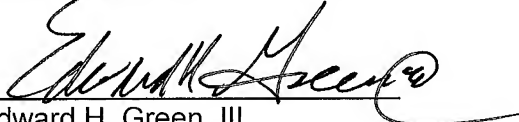
Therefore, claim 29 and its dependent claims are non-obvious over the cited references for reasons similar to those stated above with respect to claim 15.

Finally, dependent claims 27 and 32-33 stand rejected as being obvious over Rampone in view of Onitsuka and Miyauchi (U.S. Pat. No. 5,539,976). However, these claims depend directly or indirectly from respective independent claims that are non-obvious over the cited art. Miyauchi does not remedy either Rampone or Onitsuka, and thus, claims 27 and 32-33 are also non-obvious over the cited references.

In light of the foregoing remarks, all pending claims are in condition for allowance. Therefore, Applicant respectfully requests that the Examiner withdraw the rejections and issue a Notice of Allowance.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.



Edward H. Green, III
Registration No.: 42,604

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1400 Crescent Green, Suite 300
Cary, NC 27518

Telephone: (919) 854-1844
Facsimile: (919) 854-2084